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Flat roofs are likely to be subject to still less objection in Ireland, than in England; because the quantity of snow, which falls here in general, is so much less, that there can hardly ever be any danger of its accumulating so as to do them any injury by its weight.

In large cities where ground is scarce and dear, flat rooffs would be peculiarly commodious, and add much to the comfort and health of the inhabitants; affording them an additional surface, for all the uses to which yards are applied, equal to the area of the space occupied by all the houses; which in London, for example, on a rough estimate could not be less than the prodigious surface of four or five square miles.

Flat roofs would, besides affording all the convenience of yards, be preferable to them for many purposes; from their being more exposed to the sun and wind, cloaths could be dried on them better than below: and the same circumstances would render them more favourable to those little plantations of flowers, which most citizens delight in rearing; though from the want of proper light and ventilation in the confined situations, where they are at present placed, they seldom thrive with any vigour, and require constant rennovation of their ranks from the country to prevent utter extinction. Some may think this consideration trifling, but a more mature reflection might convince them, that no innocent amusements should be despised, especially when they contribute to health, and the recreation of the mind, as well as to the gratification of the senses

In making the composition for flat roofs, coal tar should certainly be tried, there is no apparent reason why it should not do as well as pine tar, and it would cost much less.

In point of economy also, roofs of Tarras composition, and of the artificial puzzolana, which has been described in a former number of this magazine, should also have a fair trial; for if they succeeded, they would form a much cheaper covering for houses than any yet mentioned.

Flat roofs also cause a great saving of timber in buildings of a certain size, such as that of the cotton mill mentioned, for in them the place of the heavy frame work, which would be necessary to support common roofs, is supplied by beams alone; and though the rafters must be somewhat larger for flat roofs, yet as on the other hand, so much fewer of them will be required, as the breadth of the roof is less than the sum of the two sides of a roof of the common kind necessay for the same building, it is imagined that even for them considerably less timber will be required: and to buildings of all sizes, both small and great, this latter consideraation is universally applicable. J.W.B.

A method of preparing Aromatic Vinegar; by Mr. J. Jennings.

Take of common vinegar any quantity, mix with it powdered chalk, or common whiting, sufficient to destroy the acidity. Then let the white matter subside, and pour off the insipid supernatant liquor;—afterwards let the white powder be dried, either in the open air, or by fire. When it is dry, pour upon it sulphuric acid, as long as white acid fumes continue to ascend. Stone vessels are the most proper to be used on this occasion, as the acid will not act upon them. The product is the *Acetic Acid*, known in the shops by the name of Aromatic Vinegar. If any one is desirous of obtaining the acid in a liquid state, the apparatus of *Nooth* presents a convenience for the purpose. It must of course be collected in water.

Remark....Mr. Jennings proposes the above process as an useful and commodious one for purifying prisons, hospitals, and houses where contagion is presumed or suspected. The white acid fumes diffusing themselves quickly around. From which it should appear that he either has not heard of the superior efficacy of the fumigations of oxigenated muriatic acid, of nitric acid, or even of muriatic, for these purposes, which have been so fully proved, in so many various instances, and accounts of the great and indeed surprizing powers of which have appeared in so many publications, that it seems very unaccountable, that Mr. Jennings should not have heard of them; or if he did, why he did not think them deserving of any notice.

Liquid acetic acid is useful however for many purposes, and this method for obtaining it, is cheap and simple, with the exception of the use of Nooth's apparatus, recommended in it, for which simpler vessels may be easily substituted.

Observations on loaded and unloaded Barges, and other floating bodies descending with streams, or currents, accounting for their heaviest extremities going foremost; by George Orr, esq. *Phil. Mag. v.35 p.31.*

Loaded barges, beams of wood, and other bodies floating with the tide, will make a quicker progress than the tide; the same will take place in the current of a river, where there is no tide. The bargemen on the Thames, account for this by saying, "that loaded barges have more hold of the tide, from their floating deeper, than unloaded ones." Mr. Orr does not approve of this reason, but thinks on the contrary, it takes place from the following cause.

"When water is perfectly at rest, its surface presents an horizontal plane; but on any change from this state of rest taking place, the particles of water are, by the force of gravitation, put in motion, and will endeavour to find their level again, or continue to move in an *inclined plane;* and all bodies floating on the surface more or less deep, or suspended in the fluid, being subject to the same laws of gravitation, take their direction with the moving fluid, and thus pass down the same inclined plane, with a motion more or less accelerated, as such bodies are heavier or lighter; that is as they possess more or less power to overcome the resistance that may be opposed to them."

Mr Orr thus accounts for the quicker progress of the floating bodies on the inclined plane so formed. "The reason of this quicker progress, seems to me to be, that any solid floating on a fluid, and descending with it, acts altogether in one mass; and its particles thus acting together, combine to overcome the resistance they meet, and to divide the fluid, which easily yielding to any pressure, will make way for the body in its descent pressing forward. Besides, the particles of the fluid do not act in conjunction, and being easily separated they roll about and impede each other by their friction, not only against each other, but against the sides of the river, and the bed on which they descend.

To this may be added, that less friction takes place between the fluid and solid, as they attract each other less, than between the innumerable particles of the fluid; consequently, the solid will glide on, or slip through the liquid with a greater degree of velocity, than the fluid, under the circumstances already enumerated, can attain."

Mr. Orr states in his paper several miscellaneous circumstances relating to the same subject, of which the following are selected.

"When the wind blows strong into any bay, or against any embayed coast, there must be an under current; because the wind prevents the return of the accumulated water along the surface."

"All pressure on bodies floating with streams must, whether the pressure be perpendicular, or oblique, increase their progress:—if the pressure be perpendicular, it adds to the weight, and consequently to their power of overcoming resistance on the part of the fluid: if the pressure be oblique, and in the direction of the motion; it will, besides encreasing the weight, give impulse.

"It is observed (by another writer on the same subject) that the surface of the ocean is an inclined plane. I have stated in some of my letters before published, that the surface of the ocean consists of an infinity of inclined planes, or of ascents and descents, owing to the attraction of gravitation and its laws."

"The reason why ships at sea that are deeply loaded make less progress on a voyage than those which are lighter, seems to be; that what they gain, in descending from the top of a wave, or inclined plane, over a lighter vessel, by their greater gravity, they lose in ascending the next wave: since the surface of the ocean consists